REMARKS

This application has been reviewed in light of the Office Action dated September 3, 2008. Claims 1-3 and 5-8 are presented for examination, of which Claims 1 and 5 are in independent form. Claims 9-18 have been cancelled without prejudice and will not be discussed further. Claims 1, 3 and 5-8 have been amended to define still more clearly what Applicants regard as their invention. Favorable reconsideration is respectfully requested.

Claims 1-3 and 5-8 were rejected under 35 U.S.C. § 103(a) as being obvious from Kitamura et al., "Consolidated Manipulation of Virtual and Real Objects", September 1997, *Proceedings of the ACM Symposium on Virtual Reality Software and Technology* (Kitamura), pages 133-38. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

As discussed in the specification, the present invention relates to operating objects in a "special virtual space" where some objects are entirely made-up while the others represent objects in a real space. Objects in a special virtual space need to be subject to at least some laws of physics, or the space would look unrealistic and the partial correspondence to a real space would become meaningless (para. [0004]). To design and implement a good special virtual space, it is important to understand well how objects in a real space might limit the motion of objects in the special virtual space. For example, a table in the real space may be introduced, and the special virtual space may consist of some made-up objects interacting with an object representing the tabletop. One reasonable option, as illustrated in the present application, then is to limit the motion of the made-up objects to translation along the tabletop and rotation

around an axis perpendicular to the tabletop (para. [0004]).

In turn, to well understand how objects in the real space might limit the motion of objects in the special virtual space, it is very helpful to be able to efficiently specify what an object in the real space is located as well as what it looks like at any moment. This is especially true if an object in the real space is easily deformed as it undergoes motion. For example, a sponge in the real space, which becomes thicker as it absorbs water, may be introduced into the special virtual space. As illustrated in the present application, it would be convenient to provide in one shot the shape information and position information of the sponge in the real space by quickly specifying with a sensor stylus the coordinate of each apex of the sponge (para. [0060]) at one point, and at a later time when it has got thicker on the way to a different location.

The present invention has been made to enable dynamic creation of constraining shapes in the special virtual space which correspond to objects in the real space. Applicants note that it suffices according to the present invention to allow the specification of coordinates of certain points on the object in the real space in terms of the shape information, as the present invention offers the capability to derive the complete shape from the coordinates of specific points. Conceivably, the specification via a sensor stylus may be done by hand when the special virtual system is being trained or attached to each of specific points on the object in the real space when the special virtual system is in actual use.

Claim 1 recites, among other features, "constraining shape input means for specifying three-dimensional coordinates respectively of points on a constraining plane to indicate at the same time the shape and position of the constraining plane in said real space."

The feature recited above is not believed to be disclosed or taught in *Kitamura*. *Kitamura* relates to a system for manipulating objects in a special virtual space. As Applicants understand, the system obtains the position information and shape information of an object in a real space as follows. 1) It accepts the shape information – but not position information in terms of coordinates – of the object in the real space, before the object is introduced into the special virtual space. 2) It tracks the motion – position information – of the object in the real space through a 6 DOF tracker device as the motion of the object is reflected in the special virtual space.

Applicants note that Step 1) leads to shape information only, and Step 2) leads to position information only. It follows that the *Kitamura* system assumes among other things that the shape of an object in the real space does not change as the object undergoes motion. Therefore, it accepts the shape information in the first place and uses the tracker device to continuously get the position information as the object undergoes motion. Apparently, the *Kitamura* system obtains from Step 2) information about the position of the object overall in the real space, but not exactly where all the specific points of the object (such as its apexes) are in the real space, which it derives from this position information combined with the shape information it has received in the first place.

In other words, *Kitamura* certainly does not disclose "constraining shape input means for specifying three-dimensional coordinates respectively of points on a constraining plane to indicate at the same time the shape and position of the constraining plane in said real space." The claim that the shape of an object in the real space needs to be given before the object is introduced to the special virtual space, as expressed through Step 1), also means that *Kitamura*

does not suggest this feature in any way.

For at least the reasons discussed above, Claim 1 is believed allowable over *Kitamura*.

The other independent claim, Claim 5, is believed to be allowable over *Kitamura* for the same reasons as is Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or the other of Claims 1 and 5, and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and its entry is therefore believed proper under 37 C.F.R. § 1.116. In any event, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, he is respectfully requested to contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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